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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/562,511
Filing Date: December 28, 2005
Appellant(s): CLAUBERG, BERND

Frank C. Nicholas
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 12/08/2008 appealing from the Office action mailed 07/08/2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

US Pub. 2002/0175826	Hutchison et al.	11-2002
6,809,655	Colby	10-2004
6,362,578	Swanson et al.	3-2002

(9) Grounds of Rejection

The following grounds of rejection are applicable to the appealed claims:

- a. Claims 1 and 3-5 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Colby (US 6,809,655) in view of Swanson (US 6,362,578).

Re claims 1 and 3-5, Colby discloses and teaches that it is known in the art to provide traffic light system comprising a traffic light (420) having a first to fifth LED circuits (i.e., 110A, 110B, 110C, 440, 450) that are selectively controlled by a single control module including electronics for the purpose of controlling the direction and flow of an incoming traffic at an intersection (Figs. 1, 2B, 4B; Col. 1, lines 24- 30; Col. 1, line 48- Col. 2, line 4).

Although, Colby does not show the detailed structure of the first to fifth LED circuits (i.e., 110A, 110B, 110C, 440, 450) as claimed, such arrangement is well known and would have been easily incorporated by a person having ordinary skill in the art within the known traffic light system as taught by Colby for no other reason displaying a specific pattern of traffic light to control traffic at an intersection. Furthermore, one of ordinary skill in the art recognizes that the known single control module including electronics (see Col. 1, line 48- Col. 2, line 4) to operate in order to prevent simultaneous closure of the electronic switches associated with the first to fifth LED circuits (i.e., 110A, 110B, 110C, 440, 450) would have been obvious for no other reason that controlling the direction and flow of traffic without giving conflicting lighting signals (Fig. 4).

In the same field of endeavor, Swanson discloses a first to third LED circuit; wherein each of the first to third LED circuit including a series connection of a first to third LED arrays (14, 16, 18), a first to third current limiters (30, 30, 30) and a first to third electronic switches (24, 26, 28) to the voltage source (B+); wherein the first, second and third LED circuits are connected in parallel for the purpose of providing illuminated signal having discrete functionality (Fig. 1; Col. 1, lines 38-47; Col. 3, lines 13-19; Col. 7, 12-19); and

Furthermore, Swanson discloses and teaches to provide a switch controller (i.e., PWM

38) operable to selectively open and close the first to third electronic switches (24, 26, 28), wherein the first to third current limiters (30, 30, 30) controls a flow of one of a first to third LED current from the voltage source (B+) through the first to third LED arrays (14, 16, 18) whenever the switch controller (i.e., PWM 38) selectively closes one of the first to third electronic switches (24, 26, 28), and wherein the flow of one of a first to third LED current from the voltage source (B+) through the first to third LED arrays (14, 16, 18) is impeded whenever the switch controller (i.e., PWM 38) selectively open one of the first to third electronic switches (24, 26, 28) for the purpose of controlling the first to third LED arrays (14, 16, 18) to have discrete functionality (Fig. 1; Col. 1, lines 34-47; Col. 3, lines 13-24; Col. 7, lines 12-19; Col. 1, lines 34-37).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify each of the known first to fifth LED circuits (i.e., 110A, 110B, 110C, 440, 450) of Colby's traffic lighting system by incorporating a series connection of LED arrays, current limiter and a switch as taught by Swanson for the purpose of displaying distinguishable illuminated signal to control the direction and flow of traffic at an intersection.

b. Claims 6 and 8-10 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Colby (US 6,809,655) in view of Hutchison (US 2002/0175826).

Re claims 6 and 8, Colby discloses and teaches that it is known in the art to provide traffic light system comprising a traffic light (420) having a first to fifth LED circuits (i.e., 110A, 110B, 110C, 440, 450) that are selectively controlled by a single control module including electronics for the purpose of controlling direction and flow of an incoming traffic at an

intersection (Figs. 1, 2B, 4B; Col. 1, lines 24- 30; Col. 1, line 48- Col. 2, line 4).

Although, Colby does not show the detailed structure of the first to fifth LED circuits (i.e., 110A, 110B, 110C, 440, 450) as claimed, such arrangement is well known and would have been easily incorporated by a person having ordinary skill in the art within the known traffic light system as taught by Colby for no other reason displaying a specific pattern of traffic light to control traffic at an intersection. Furthermore, one of ordinary skill in the art recognizes that the known single control module including electronics to operate in order to prevent simultaneous opening of the electronic switches associated with the first to fifth LED circuits (i.e., 110A, 110B, 110C, 440, 450) would have been obvious for no other reason that controlling the direction and flow of traffic without giving conflicting lighting signals (Fig. 4).

In the same field of endeavor, Hutchison discloses a first, second and third LED circuits (i.e., LED strings 26, 28, 30) connected in series to the current source (i.e., voltage source 40), the first, second and third LED circuits (i.e., LED strings 26, 28, 30) including a parallel connection of a first, second and third LED arrays (i.e., LEDs within first, second and third strings 26, 28, 30) and a first, second and third electronic switches (Q9, Q8, Q15); and a switch controller (64) operable to selectively open and close each of the first, second and third electronic switches (Q9, Q8, Q15), wherein a first, second and third LED current flow from the current source (i.e., voltage source 40) through the first, second and third LED array (i.e., LEDs within string 26) whenever the switch controller (64) opens the first, second and third electronic switches (Q9, Q8, Q15), and wherein the flow of the first, second and third LED current from the current source (i.e., voltage source 40) through the first, second and third

LED array (i.e., LEDs within strings 26, 28, 30) is impeded whenever the switch controller (64) closes the first, second and third electronic switches (Q9, Q8, Q15) (Figs. 3, 4a; paragraphs [0008], [0016], [0022], [0023]).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify each of the first to fifth LED circuits (i.e., 110A, 110B, 110C, 440, 450) of Colby's traffic lighting system by incorporating an electronic switch in shunt with the LED arrays as taught by Hutchison for no other reason than displaying distinguishable illuminated signal to control the direction and flow of traffic at an intersection.

(10) Response to Argument

Appellants' arguments filed 12-08-2008 have been fully considered but they are not persuasive.

(I) With respect to claims 1 and 3-5, Appellant's argue that Colby patent and Swanson patent fail to show a traffic light wherein the switch controller is operable to prevent simultaneous closure of the first electronic switch as claimed.

In response to Appellants' argument, it is respectfully submitted that the combination of Colby and Swanson references teaches all the limitations of claims 1 and 3-5 as applied in paragraph 9(a) herein above.

Colby clearly discloses a well known traffic light system which is similar to the instant claimed invented traffic light system comprising a traffic light (100, 420) having a first to third LED circuits (i.e., 110A, 110B, 110C) and/or first to fifth LED circuits (i.e., 110A, 110B, 110C, 440, 450) that are selectively controlled by a single control module including electronics for the

purpose of controlling the direction and flow of an incoming traffic at an intersection (Figs. 1, 2B, 4A, 4B; Col. 1, lines 24- 30; Col. 1, line 48- Col. 2, line 4).

What colby does not show is the detailed structure of the claimed LED citrcuits arrangement of the first and second LED circuits wherein each of the first to fifth LED citrcuits including a series connection of LED arrays, current limiter and a switch as claimed in claims 1 and 3-5 of the instant application.

Swanson is cited to show a known and widely used LED circuit arrangment which is similar to that of the claimed LED circuit arrangment (i.e., at least two LED circuits) wherein each LED circuit including a series connection of LED arrays (14, 16, 18), current limiters (30, 30, 30) and an electronic switch (24, 26, 28) in series with the voltage source (B+); wherein the LED circuits (i.e., at least two LED circuits) are connected in parallel for the purpose of providing illuminated signal generated by the LED circuit having discrete functionality (Fig. 1; Col. 1, lines 38-47; Col. 3, lines 13-19; Col. 7, 12-19).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify each of the known first to fifth LED circuits (i.e., 110A, 110B, 110C, 440, 450) of Colby's traffic lighting system by incorporating a series connection of LED arrays, current limiter and a switch as taught by Swanson for no other reason than displaying distinguishable illuminated signal to control the direction and flow of traffic at an intersection.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

In the instant case, the claim at issue calls for a traffic light wherein the switch controller is operable to prevent simultaneous closure of the first electronic switch as claimed.

As discussed above and further explained below, Colby patent discusses several known traffic signal being supported by one or more supporting elements and coupled through a single control module including electronics (Col. 2, lines 1-4). Thus, one of ordinary skilled in the art would have recognized that **the single control module including electronics being operable to prevent simultaneous closure of the electronic switches** associated with the LED circuits of the Colby's modified by Swanson (Colby's modified by Hutchison) traffic lighting system would have been obvious for no other reason than displaying distinguishable illuminated signal (i.e., red light, amber light or green light or red green and/or yellow arrow lights) to control the direction and flow of traffic at an intersection (Figs. 1, 4a, 14A, 14B, 14J and 14K). Furthermore, applicant's own disclosure requires only a properly working switch controller for prevention of simultaneous closure of the electronic switches in order to avoid sending a conflicting signal (page 3, lines 21-23).

Appellant's on page 11, paragraph 2, disagrees about the Examiner assertion on page 6, of the Office Action dated July 8, 2008, that the single control module including electronics being operable to prevent simultaneous closure of the electronic switches associated with the LED circuits of the Colby's modified by Swanson traffic lighting system would have been obvious for no other reason than displaying distinguishable illuminated signal (i.e., red light,

amber light or green light or green arrow light) to control the direction and flow of traffic at an intersection (Figs. 1, 4a) because the Colby patent explicitly teaches simultaneous illumination of multiple lamp, which teaches away for preventing simultaneous closure of electronic switch as claimed. Appellant's cited Figs. 14C-14I of Colby's patent as a support for teaching away for preventing simultaneous closure of electronic switch as claimed.

The Examiner respectfully disagrees. In the first place, Colby discloses a traffic light using LEDs as light source (Figs. 1, 2, 4). Colby not only disclose simultaneous illumination of multiple lamps, Colby discloses a separately controlled traffic lights as illustrated in Figs. 1, 4a, 14A, 14B, 14I and 14K, which reads on operable to prevent simultaneous opening of electronic switches . Therefore, not only simultaneous illumination of multiple lamps is taught by Colby, but also a separate illumination from group of lamps (i.e., see specifically Figs. 1, 14A, 14B, 14I and 14K of Colby) (in addition see Figs. 1, 4a, 14A, 14B, 14I and 14K, 5, 6; Col. 1, lines 43-46; Col. 3, lines 6-11 & 35-40; Col. 5, lines 13-45).

Thus, Colby patent not only teaches simultaneous illumination of multiple lamp as construed by Appellant's, but also teaches that the single control module including electronics being operable to prevent simultaneous closure as claimed for no other reason than controlling the direction and flow of traffic at an intersection (Figs. 1, 4a, 14A, 14B, 14J and 14K; Col. 3, lines 6-11 & 35-40).

In response to Appellant's argument on page 12, fourth paragraph, that Colby patent fails to show a traffic light controlled by a single control module as asserted by the Examiner is respectfully disagreed.

Colby patent clearly discloses several traffic signals being supported by one or more supporting elements and coupled through a single control module including electronics (Col. 2, lines 1-4).

In response to Appellant's contention on page 13 second paragraph that the modification of the Swanson patent to prevent simultaneous switch closure as claimed makes the automobile rear combination lamp driver circuit of the Swanson patent inoperable and defeats the purpose is respectfully disagreed.

The modification is to the lighting circuit arrangement of the Colby patent not the Swanson patent as construed by Appellant's.

In response to Appellant's argument on page 14, paragraph 2 that the Swanson patent is in a different art area than the appellant's invention is respectfully disagreed.

Both, Colby patent and Swanson patent are in an art related area where the illuminated signal is generated using LEDs as a light source.

In response to Appellant's argument on page 14, paragraph 4 that the Colby patent and Swanson patent fail to show a traffic light wherein the switch controller is operable to prevent simultaneous closure of the first electronic switch, second electronic switch, third electronic switch, fourth electronic switch, and/or fifth electronic switch as claimed, is respectfully disagreed.

Colby clearly discloses a well known traffic light system which is similar to the instant claimed invented traffic light system comprising a traffic light (420) having a first to fifth LED circuits (i.e., 110A, 110B, 110C, 440, 450) that are selectively controlled by a single control

module including electronics for the purpose of controlling the direction and flow of an incoming traffic at an intersection (Figs. 1, 2B, 4A, 4B; Col. 1, lines 24- 30; Col. 1, line 48- Col. 2, line 4).

What colby does not show is the detailed structure of the claimed LED citrcuits arrangement of the first and second LED circuits wherein each of the first to fifth LED citrcuits including a series connection of LED arrays, current limiter and a switch as claimed in claims 1 and 3-5 of the instant application.

Swanson is cited to show a known and widely used LED circuit arrangment which is similar to that of the claimed LED circuit arrangment (i.e., at least two LED circuits) wherein each LED circuit including a series connection of LED arrays (14, 16, 18), current limiters (30, 30, 30) and an electronic switch (24, 26, 28) in series with the voltage source (B+); wherein the LED circuits (i.e., at least two LED circuits) are connected in parallel for the purpose of providing illuminated signal generated by the LED circuit having discrete functionality (Fig. 1; Col. 1, lines 38-47; Col. 3, lines 13-19; Col. 7, 12-19).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify each of the known first to fifth LED circuits (i.e., 110A, 110B, 110C, 440, 450) of Colby's traffic lighting system by incorporating a series connection of LED arrays, current limiter and a switch as taught by Swanson for no other reason than displaying distinguishable illuminated signal to control the direction and flow of traffic at an intersection.

As discussed above and further explained below, Colby patent discusses several known traffic signal being supported by one or more supporting elements and coupled through a single control module including electronics (Col. 2, lines 1-4). Thus, one of ordinary skilled in the art

would have recognized that the single control module including electronics being operable to prevent simultaneous closure of the electronic switches associated with the LED circuits of the Colby's modified by Swanson (Colby's modified by Hutchinson) traffic lighting system would have been obvious for no other reason than displaying distinguishable illuminated signal (i.e., red light, amber light or green light or red green and/or yellow arrow lights) to control the direction and flow of traffic at an intersection (Figs. 1, 4A, 4B, 14A, 14B, 14J and 14K).

The Examiner would like to point out that Colby's patent is directed to an improvement over a known traffic light system which is similar to the instant claimed invention by providing a single lamp with a variable light pattern enables the number of lamps in a traffic signal to be reduced without decreasing the utility of the traffic signal. The benefit of Colby's patent over the prior art lighting system including the instant claimed invention is in reduction in cost by reducing the number of lamps in a traffic signal without decreasing the utility of the traffic signal (see Colby's Col. 3, lines 46-56).

Therefore, the prima facie case of obviousness has been met and the rejection of claims 1 and 3-5 under 35 U.S.C. § 103 is deemed proper.

(II) With respect to claims 6 and 8-10, Appellant's argue that Colby patent and Hutchinson fail to show a traffic light wherein the switch controller is operable to prevent simultaneous opening of the first electronic switch and the second electronic switch as claimed.

Colby discloses and teaches that it is known in the art to provide traffic light system comprising a traffic light (420) having a first to fifth LED circuits (i.e., 110A, 110B, 110C, 440, 450) that are selectively controlled by a single control module including electronics for the purpose of controlling direction and flow of an incoming traffic at an intersection (Figs. 2B,

4B; Col. 1, lines 24- 30; Col. 1, line 48- Col. 2, line 4).

Although, Colby does not show the detailed structure of the first to fifth LED circuits (i.e., 110A, 110B, 110C, 440, 450) as claimed, such claimed arrangement is well known and would have been easily incorporated by a person having ordinary skill in the art within the known traffic light system as taught by Colby for no other reason displaying a specific pattern of traffic light to control traffic at an intersection. Furthermore, one of ordinary skill in the art recognizes that the known single control module including electronics to operate in order to prevent simultaneous closure of the electronic switches associated with the first to fifth LED circuits (i.e., 110A, 110B, 110C, 440, 450) would have been obvious for no other reason that controlling the direction and flow of traffic without giving conflicting lighting signals (Fig. 4).

Hutchison discloses a first, second and third LED circuits (i.e., LED strings 26, 28, 30) connected in series to the current source (i.e., voltage source 40), the first, second and third LED circuits (i.e., LED strings 26, 28, 30) including a parallel connection of a first, second and third LED arrays (i.e., LEDs within first, second and third strings 26, 28, 30) and a first, second and third electronic switches (Q9, Q8, Q15); and a switch controller (64) operable to selectively open and close each of the first, second and third electronic switches (Q9, Q8, Q15), wherein a first, second and third LED current flow from the current source (i.e., voltage source 40) through the first, second and third LED array (i.e., LEDs within string 26) whenever the switch controller (64) opens the first, second and third electronic switches (Q9, Q8, Q15), and wherein the flow of the first, second and third LED current from the current source (i.e., voltage source 40) through the first, second and third LED array (i.e., LEDs

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within strings 26, 28, 30) is impeded whenever the switch controller (64) closes the first, second and third electronic switches (Q9, Q8, Q15) (Figs. 3, 4a; paragraphs [0008], [0016], [0022], [0023]).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify each of the first to fifth LED circuits (i.e., 110A, 110B, 110C, 440, 450) of Colby's traffic lighting system by incorporating an electronic switch in shunt with the LED arrays as taught by Hutchison for no other reason than displaying distinguishable illuminated signal to control the direction and flow of traffic at an intersection.

Colby patent discusses several traffic signals being supported by one or more supporting elements and coupled through a single control module including electronics (Col. 2, lines 1-4). Thus, one of ordinary skilled in the art would have recognized that the single control module including electronics being operable to prevent simultaneous opening of the electronic switches associated with the LED circuits of the Colby's modified by Hutchison traffic lighting system would have been obvious for no other reason than displaying distinguishable illuminated signal to control the direction and flow of traffic at an intersection. Furthermore, applicant's own disclosure requires only a properly working switch controller for prevention of simultaneous closure of the electronic switches in order to avoid sending a conflicting signal (page 3, lines 21-23).

The distinction between the claimed invention of claims 6 & 8-10 with respect to the claimed invention in claims 1 & 3-5 is that the first to fifth LED circuits as claimed in claims 6 & 8-10 being arranged in series with the voltage source rather than the first to fifth LED circuits being arranged in parallel. Arranging LED circuits in parallel or in series for the purpose of

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generating illuminating signal is well known and widely used as is evidenced by Hutchison publication or Swanson patent.

Thus, the response to appellant's argument as is addressed above with respect to claims 1 and 3-5 is equally applicable to Appellant's argument presented to claims 6 and 8-10.

Therefore, the prima facie case of obviousness has been met and the rejection of claims 6 and 8-10 under 35 U.S.C. § 103 is deemed proper.

(11) Evidence Appendix

None.

(12) Related Proceeding(s) Appendix

None.

(13) Conclusion

Claims 1 and 3-5 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Colby (US 6,809,655) in view of Swanson (US 6,362,578) and Claims 6 and 8-10 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Colby (US 6,809,655) in view of Hutchison (US 2002/0175826) for the reasons as set forth above.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

EPHREM ALEMU

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